

## Cover Crop as Renovation for Irrigated Pasture

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**County:** Wheatland  
**Average annual precip:** 14"  
**MLRA:** 46, Northern Rocky Mountain Foothills  
**Dominant Soil Type:** 461B, Varney Gravelly Loam, 0-4 percent slopes  
**Acres:** 60  
**Planting Date:** May 10 to 12, 2020  
**Seeding Rate:** 1,252,849 seeds/acre, or 91 pounds pls/acre  
**Seed Cost:** \$28.59/acre (inoculant, seed, and delivery)  
**Seeding Method:** No-till disc drill  
**Row Spacing:** 7"  
**Tillage:** disced to smooth out and remove flood ditches  
**Previous Crop and Year:** 2019, alfalfa-grass hay  
**Herbicides: Pre:** Roundup  
**Post:** none  
**Insecticides/Fungicides:**  
**Fertilizer:** none  
**Irrigation:** irrigated  
**Termination Date:** September 2020  
**Termination Method:** Graze/Frost  
**Next Crop:** Cover Crop 2021



Fig. 1. Ungrazed cover crop July 27, 2020. Devin Roloff, NRCS-Harlowton Field Office.

### Monthly Precipitation at Harlowton, MT

Harlowton	J	F	M	A	M	J	J	A	S	O	N	D	Total
1981-2010	0.34	0.37	0.71	1.4	2.44	2.98	1.79	1.33	1.1	0.73	0.48	0.4	14.08
2020	0	0	0.57	1.23	1.88	2.99	0.55	0.53	0.42	1.31	0.19	0.12	9.79

Fig. 2. Monthly precipitation at Harlowton, MT. Western Regional Climate Center, station #243939.

### Introduction:

Cover crop planted as a replacement for grain crops in pasture renovation. The producer's goals are to get away from haying as much as possible, go to year-round grazing, and planting cover crop mixes instead of grain when a field is renovated. A goal of the cover crop is to trample residue to provide organic matter and weed suppression.

### Results:

Visited on July 23 and sampled on July 27. The barley and oats dominated the stand. The other species were scattered throughout the field, but the turnips/rapeseed/flax in particular were widely spaced and spindly. There was still a little quackgrass in the field, but not much. After the field was grazed, there was a lot of residue trampled onto the soil surface, which was one goal of the cover crop. It should provide good weed suppression and a good seedbed for 2021.

There were 77 growing days and 1590 Growing Degree Days (base 40) from the time of seeding to the time of clipping. Three clippings were taken, across a diagonal transect. Plants were separated by species in the field and



air-dried at the office. Total aboveground biomass after air-drying was 3757 lb/acre, or 1.9 ton/acre. Assuming 910 lbs of forage per animal month, and 35% harvest efficiency on 60 acres, there were 87 AUMs available in this field.

Plant biomass percentage by species varied from the planned seed mix percentage. Of particular note, cool season grasses dominated the biomass, planned percentage was 62% and biomass was 86%. Brassicas and broadleaves were widely spaced and spindly even though they were planned to be 31% of the mix.

#### Summary and Discussion:

Overall, this cover crop grew very well. We were very pleased to see low weed pressure and healthy dryland biomass production. Cover crop was intensively grazed with temporary electric fence for economic return. One of the primary goals of the cover crop is to get control of the quackgrass growing before establishing a perennial pasture mix. After one year of cover crop and two more to go, there is significantly less quackgrass than before. The producer is enthusiastic to see the production of the cover crop in 2021 and 2022 and the establishment of perennial grass in 2023.



*Fig. 3. Cattle grazing cover crop just before moving to the next strip July 23, 2020. Devin Roloff, NRCS-Harlowton Field Office.*

	Seed Mix %	Plant biomass %
<b>Legumes</b>	7	11
<b>Brassicas</b>	25	2
<b>Cool grasses</b>	62	86
<b>Broadleaves</b>	6	1

*Fig. 4. Comparison of planned seed mix percentage vs actual aboveground biomass percentage.*